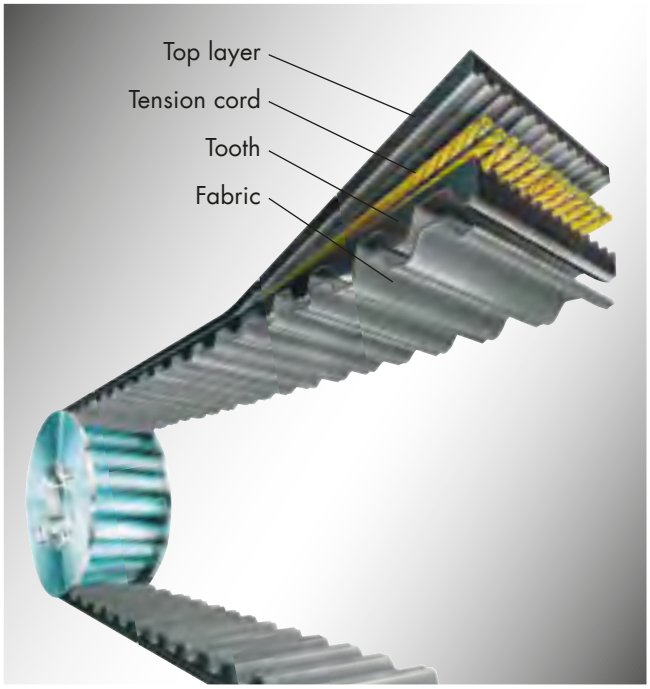
PRODUCT DESCRIPTION
optibelt OMEGA TIMING BELTS

Structure



Top layer
The belt top layer consists of a flexible polychloroprene compound which protects the tension cord from external influences. In addition, it offers limited resistance to mineral oils and humidity as well as protection from frictional wear and tear.

Tension cord
The tension member is composed of a pair of counter twisted glass fibre cords. These tension cords have high tensile strength, very high flexibility and very low stretch.

Teeth
Just like the belt top layer, the teeth consist of a polychloroprene compound guaranteeing high shear strength.
The dimples in the teeth promote quiet running.

Fabric
The polyamide fabric protects the teeth from premature wear and tooth root cracking. At the same time, the low coefficient of friction lowers the operating temperature and helps to reduce the running noise.

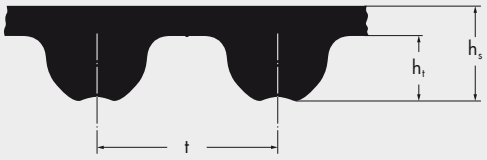
High performance optibelt OMEGA timing belts are the result of a continuing development process. Operational experience with optibelt ZR and optibelt HTD® has been applied to this belt generation. Endless optibelt OMEGA timing belts set the standard for synchronous performance and for positioning drives.
The geometry of the optibelt OMEGA tooth profile has been developed to run in the established, curvilinear timing belt pulleys. optibelt OMEGA timing belts can be used in 3M, 5M, 8M and 14M HTD® pulley profiles. optibelt ZRS HTD® timing belt pulleys are standard items in our range with pilot bores or bored for optibelt TB taper bushes. In addition, all OMEGA timing belts can also be used in RPP® timing belt pulleys. Special timing belt pulleys for optibelt OMEGA timing belts are not required.

Application example: lawn mowers

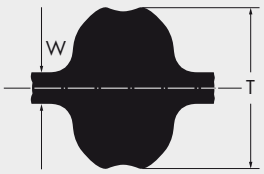
Overview of the advantages and characteristics

- synchronous speed
- highest precision
- perceptibly lower noise level due to the OMEGA tooth profile
- use in standard HTD® and RPP® timing belt pulleys
- maintenance-free
- temperature resistant from –30 °C to +100 °C
- efficiency of up to 98 %

PRODUCT DESCRIPTION
optibelt OMEGA TIMING BELTS
STANDARD PRODUCT RANGE



Profile	8M
t [mm]	8.0
h_s [mm]	5.4
h_t [mm]	3.2



Profile	D8M
W	1.372
T	7.730

optibelt OMEGA 8M

Belt designation	Pitch length [mm]	Number of teeth	Belt designation	Pitch length [mm]	Number of teeth	Belt designation	Pitch length [mm]	Number of teeth
288 8M	288.00	36	912 8M	912.00	114	1432 8M (HTD)	1432.00	179
320 8M (HTD)	320.00	40	920 8M▲	920.00	115	1440 8M▪	1440.00	180
352 8M	352.00	44	936 8M	936.00	117	1480 8M	1480.00	185
376 8M	376.00	47	960 8M▲	960.00	120	1520 8M▪	1520.00	190
416 8M	416.00	52	968 8M	968.00	121	1552 8M▪	1552.00	194
424 8M	424.00	53	976 8M	976.00	122	1584 8M▪	1584.00	198
480 8M	480.00	60	1000 8M	1000.00	125	1600 8M▪	1600.00	200
512 8M	512.00	64	1040 8M▲	1040.00	130	1680 8M▪	1680.00	210
520 8M	520.00	65	1056 8M	1056.00	132	1696 8M	1696.00	212
536 8M	536.00	67	1064 8M	1064.00	133	1728 8M▪	1728.00	216
560 8M	560.00	70	1080 8M	1080.00	135	1760 8M▪	1760.00	220
576 8M	576.00	72	1096 8M	1096.00	137	1800 8M▪	1800.00	225
584 8M	584.00	73	1120 8M▪	1120.00	140	1896 8M	1896.00	237
600 8M▲	600.00	75	1128 8M▪	1128.00	141	1904 8M▪	1904.00	238
608 8M	608.00	76	1152 8M•	1152.00	144	1936 8M▪	1936.00	242
624 8M	624.00	78	1160 8M▪	1160.00	145	2000 8M▪	2000.00	250
632 8M	632.00	79	1168 8M	1168.00	146	2080 8M▪	2080.00	260
640 8M▲	640.00	80	1184 8M▪	1184.00	148	2104 8M▪	2104.00	263
656 8M▲	656.00	82	1192 8M•	1192.00	149	2240 8M▪	2240.00	280
672 8M•	672.00	84	1200 8M▪	1200.00	150	2248 8M▪	2248.00	281
680 8M	680.00	85	1216 8M▪	1216.00	152	2272 8M▪	2272.00	284
712 8M	712.00	89	1224 8M▪	1224.00	153	2400 8M▪	2400.00	300
720 8M▲	720.00	90	1248 8M▪	1248.00	156	2504 8M▪	2504.00	313
744 8M•	744.00	93	1256 8M▪	1256.00	157	2600 8M▪	2600.00	325
760 8M	760.00	95	1264 8M•▪	1264.00	158	2800 8M▪	2800.00	350
776 8M▲	776.00	97	1280 8M▪	1280.00	160	3048 8M	3048.00	381
784 8M▲	784.00	98	1296 8M•	1296.00	162	3280 8M▪	3280.00	410
792 8M•	792.00	99	1304 8M▪	1304.00	163	3600 8M▪	3600.00	450
800 8M▲	800.00	100	1320 8M	1320.00	165	4400 8M*•	4400.00	550
824 8M	824.00	103	1328 8M▪	1328.00	166			
840 8M	840.00	105	1344 8M▪	1344.00	168			
848 8M	848.00	106	1360 8M	1360.00	170			
856 8M	856.00	107	1392 8M	1392.00	174			
880 8M▲	880.00	110	1400 8M▪	1400.00	175			
896 8M	896.00	112	1424 8M▪	1424.00	178			

Standard width: 20 mm, 30 mm, 50 mm, 85 mm

• Not available ex stock

▲ Double-sided available in HTD® ▪ Double-sided available in OMEGA on request * Profile on request

Order example:

TIMING BELTS: optibelt OMEGA 1200 8M 50

1200 = 1200 mm pitch length
8M = profile
50 = 50 mm belt width

POWER RATINGS
optibelt OMEGA TIMING BELTS
PROFILE AND DESIGN 8M

Table 23

Nominal power P_N [kW] for profile and design 8M and a timing belt width of 20 mm

Speed of the small pulley n_k [min^{-1}]	Number of teeth on the small pulley z_k																
	22	24	26	28	30	32	34	36	38	40	44	48	52	56	64	72	80
	Pitch diameter of the small pulley d_{wk} [mm]																
	56.02	61.12	66.21	71.30	76.39	81.49	86.58	91.67	96.77	101.86	112.05	122.23	132.42	142.60	162.97	183.35	203.72
10	0.015	0.018	0.022	0.026	0.029	0.036	0.042	0.046	0.053	0.057	0.061	0.068	0.072	0.078	0.087	0.097	0.106
20	0.033	0.037	0.044	0.051	0.062	0.072	0.082	0.093	0.106	0.114	0.125	0.135	0.144	0.154	0.173	0.194	0.213
50	0.081	0.092	0.110	0.132	0.154	0.179	0.207	0.234	0.262	0.283	0.310	0.336	0.361	0.386	0.435	0.483	0.532
100	0.165	0.183	0.223	0.264	0.311	0.359	0.412	0.466	0.526	0.566	0.621	0.671	0.722	0.770	0.870	0.967	1.064
200	0.326	0.370	0.447	0.531	0.623	0.720	0.823	0.933	1.051	1.131	1.239	1.340	1.442	1.541	1.739	1.933	2.125
300	0.491	0.535	0.645	0.766	0.897	1.040	1.190	1.340	1.510	1.640	1.780	1.930	2.070	2.220	2.500	2.770	3.050
400	0.652	0.711	0.839	0.993	1.165	1.340	1.540	1.740	1.960	2.120	2.310	2.500	2.680	2.870	3.230	3.590	3.940
500	0.810	0.890	1.020	1.220	1.420	1.640	1.880	2.130	2.390	2.590	2.820	3.050	3.270	3.500	3.940	4.370	4.800
600	0.980	1.070	1.210	1.430	1.670	1.930	2.210	2.510	2.820	3.050	3.320	3.590	3.850	4.110	4.630	5.130	5.630
700	1.140	1.240	1.380	1.640	1.920	2.220	2.540	2.880	3.230	3.500	3.810	4.110	4.410	4.710	5.300	5.870	6.440
800	1.300	1.420	1.560	1.850	2.170	2.500	2.860	3.240	3.640	3.940	4.280	4.630	4.970	5.300	5.960	6.600	7.230
950	1.550	1.690	1.830	2.160	2.520	2.910	3.330	3.770	4.240	4.580	4.990	5.380	5.770	6.160	6.910	7.650	8.370
1000	1.630	1.770	1.930	2.260	2.640	3.050	3.480	3.950	4.440	4.800	5.220	5.630	6.040	6.440	7.230	7.990	8.740
1200	1.950	2.130	2.310	2.650	3.100	3.580	4.090	4.630	5.210	5.630	6.120	6.600	7.070	7.540	8.440	9.320	10.170
1450	2.350	2.570	2.790	3.130	3.660	4.230	4.830	5.470	6.140	6.640	7.210	7.770	8.310	8.850	9.890	10.900	11.850
1600	2.590	2.830	3.070	3.420	3.990	4.610	5.260	5.960	6.690	7.230	7.840	8.440	9.030	9.610	10.730	11.790	12.800
1800	2.920	3.180	3.450	3.780	4.420	5.100	5.820	6.590	7.400	7.990	8.670	9.320	9.960	10.590	11.790	12.920	13.990
2000	3.230	3.520	3.820	4.180	4.840	5.580	6.370	7.210	8.090	8.740	9.470	10.170	10.860	11.530	12.800	13.990	15.090
2200	3.550	3.870	4.190	4.590	5.250	6.050	6.910	7.820	8.770	9.470	10.240	11.000	11.730	12.430	13.760	14.980	16.090
2500	4.020	4.380	4.750	5.190	5.840	6.740	7.690	8.690	9.750	10.520	11.360	12.180	12.950	13.700	15.090	16.320	17.400
2850	4.570	4.970	5.380	5.880	6.510	7.510	8.560	9.670	10.850	11.690	12.600	13.470	14.290	15.060	16.460	17.650	18.620
3000	4.800	5.220	5.650	6.170	6.790	7.820	8.920	10.080	11.300	12.180	13.110	13.990	14.820	15.600	16.990	18.140	19.040
3500					7.720	8.840	10.070	11.370	12.730	13.700	14.680	15.600	16.440	17.200	18.470	19.380	19.890
4000						9.780	11.130	12.550	14.040	15.090	16.090	16.990	17.790	18.470			
4500							12.090	13.620	15.230	16.320	17.300	18.140	18.840				
5000								14.580	16.270	17.400	18.310	19.040	19.570				
5500									17.170	18.310	19.100						
6000									17.910	19.040	19.650						

Power ratings for other belt widths can be calculated by multiplying by the width correction factors.

Width correction factor				
Profile and design 8M				
Standard belt width [mm]	20	30	50	85
Factor	1.00	1.58	2.73	4.74

DIMENSIONS AND TOLERANCES
TIMING BELTS IN optibelt OMEGA PROFILE

Timing belts with optibelt OMEGA profiles are produced in a wide range of lengths and widths. Many special lengths, widths and designs are available. Please contact our Application Engineering Department for further details. Timing belts with optibelt OMEGA profiles are produced to ground category G2 with a thickness tolerance of ± 0.25 mm as standard. If required, the belts can be ground to category G1 with a thickness tolerance of ± 0.13 mm.

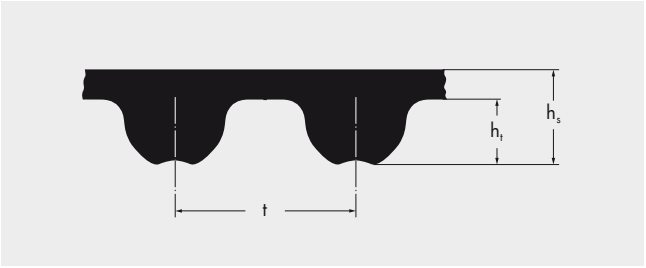


Table 37
Nominal dimensions and weights

Profile	2M	3M	5M	8M	D8M	14M
Tooth height h_t [mm]	0.70	1.10	1.90	3.20	3.20	5.60
Total belt thickness h_s [mm]	1.30	2.30	3.40	5.40	7.73	9.50
Tooth pitch t [mm]	2.00	3.00	5.00	8.00	8.00	14.00
Weight [kg/m] for 10 mm belt width	0.013	0.024	0.035	0.058	0.067	0.100

Length tolerances

Pitch length [mm]	≤ 250	> 250 ≤ 500	> 500 ≤ 750	> 750 ≤ 1000	> 1000 ≤ 1250	> 1250 ≤ 1500	> 1500 ≤ 1750	> 1750 ≤ 2000	> 2000 ≤ 2250	> 2250 ≤ 2500	> 2500 ≤ 2750	> 2750 ≤ 3000	> 3000
Length tolerances given as centre distance deviation	± 0.20	± 0.23	± 0.27	± 0.30	± 0.33	± 0.36	± 0.39	± 0.42	± 0.46	± 0.49	± 0.52	± 0.55	± 0.55 ± 0.03*

Width tolerance

Standard belt width	Allowed tolerance [mm] of the timing belt		
Nominal width [mm]	Pitch length up to 838.2 mm	Pitch length 838.3 up to 1676.4 mm	Pitch length over 1676.4 mm
3.0 to 11.0	+ 0.4 – 0.8	+ 0.4 – 0.8	—
11.1 to 38.1	+ 0.8 – 0.8	+ 0.8 – 0.8	+ 0.8 – 1.2
38.2 to 50.8	+ 0.8 – 1.2	+ 1.2 – 1.2	+ 1.2 – 1.6
50.9 to 63.5	+ 1.2 – 1.2	+ 1.2 – 1.6	+ 1.6 – 1.6
63.6 to 76.2	+ 1.2 – 1.6	+ 1.6 – 1.6	+ 1.6 – 2.0
76.3 to 101.6	+ 1.6 – 1.6	+ 1.6 – 2.0	+ 2.0 – 2.0
101.7 to 177.8	+ 2.4 – 2.4	+ 1.6 – 2.0	+ 2.0 – 2.0
177.9 to max.	—	—	+ 4.8 – 6.4

* For greater lengths additional 0.03 mm should be added in length steps of 250 mm.

